

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of	:	
	:	
Erik J. Streciwilk	:	
	:	Examiner: Minh Chau Thi Pham
Serial No.: 10/702,141	:	
	:	Group Art Unit: 1724
Filed: November 5, 2003	:	
	:	
For: DISPOSABLE FILTER WITHIN	:	
A REMOVABLE CHAMBER	:	

**APPEAL BRIEF**

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

Appeal is taken from the rejection of pending claims 1-16 made in the Office Action mailed June 1, 2007. The claims have been at least twice rejected and no claim has been allowed. A timely Notice of Appeal and fee was submitted on August 13, 2007. Please debit any additional necessary fee due from Deposit Account 11-0978.

Based on the arguments presented herein, Appellant respectfully requests remand to the Examiner with instructions for immediate allowance of all pending claims.

**I. Real Party in Interest**

The inventor assigned 100% of his interest in the present invention as embodied in U.S. Patent Application Serial No. 10/702,141 to Matsushita Electric Corporation of America, a Delaware corporation having an address of One Panasonic Way, Secaucus, New Jersey 07094. A change of name document, changing Matsushita Electric Corporation of America to Panasonic Corporation of North America, a Delaware corporation having an address of One Panasonic Way, Secaucus, New Jersey 07094, was recorded in the USPTO.

**II. Related Appeals and Interferences**

The Appellant knows of no other prior or pending appeals, interferences, or judicial proceedings, which may be related to, directly affect, or be directly affected by, or have a bearing on, the Board's decision in this Appeal.

**III. Status of Claims**

Claims 1-16 remain pending and are the subject of this appeal.

Claim 1-4 and 11-13 stand rejected under 35 U.S.C. §103(a) as being obvious in view of U.S. Patent No. 6,146,434 to Scalfani et al. ("Scalfani") in combination with U.S. Patent No. 7,188,388 to Best et al. ("Best") or U.S. Patent No. 6,598,263 to Boles et al. ("Boles").

Claims 5-10 are rejected without reference to any prior art. Instead, these claims are rejected in view of *Eskimo Pie Corp. v. Levous et al.*, 35 F.2d 120, 3 USPQ 23 (3<sup>rd</sup> Cir. 1929).

Similarly, claims 14-16 are rejected without specific reference to any prior art. Although the Examiner vaguely mentions Best, Boles and *Eskimo Pie* when referring to claims 14-16, she does not provide a specific rejection.

#### **IV. Status of Amendments**

Appellant filed an amendment on September 27, 2007, to correct a minor typographical error to claim 1. Specifically, the phrase “a dirt cup carried on said housing, said dirt cup a dirt collection...” was amended to read “a dirt cup carried on said housing, said dirt cup including a dirt collection...” Appellant has received no word from the USPTO regarding the status of this amendment, so the form of the claims for purposes of appeal are those presented in the Amendment filed by the Appellant on November 1, 2006. As required, a copy of the pending claims appears in the attached Claims Appendix, *infra*.

#### **V. Summary of Claimed Subject Matter**

The claims are concisely summarized in the following manner. Parenthetical cites to the Specification of the present application are representative in nature.

Claim 1 covers a vacuum cleaner 10 comprising a housing 12, a nozzle inlet 18, and suction generator 22 carried on said housing 12. (*Appellant's Specification*, Figure 1, p.4, l.9-p.5, l.2). The vacuum cleaner 10 also includes a dirt cup 24 carried on said housing 12, said dirt cup 24 having a dirt collection chamber 32, an inlet 44 and an open end 42, and a filter assembly 26 including a filter housing defining a filter chamber 52, said filter housing and filter chamber 52 mating with said open end 42 of said dirt cup 24. (*Appellant's Specification*, Figures 1 and 2, p.5, ll. 1 and 2, p. 5, l. 18-p.6, l. 3). The vacuum cleaner 10 also includes a filter element 34 held in said filter chamber 52 in said filter housing. (*Appellant's Specification*, Figures 2 and 3, p. 5, ll. 11-13).

Claim 2 requires that the filter housing includes a base 46, a sidewall 48 and a top 50. (*Appellant's Specification*, Figure 2, p.6, ll. 1-3). Claim 3 adds to claim 2 the requirement that the base 46 includes an inlet opening 54 in fluid communication with said open end 42 of said dirt cup 24. (*Appellant's Specification*, Figure 2, p.6, ll. 4-6). Claim 4 further adds that at least one exhaust vent 56 opening is provided in one of said sidewall 48 and said top

50 of said filter housing. (*Appellant's Specification*, Figure 2, p.6, ll. 6-7). Claim 5 adds to claim 4 the requirement that the filter assembly 26 further includes a ribbed filter support 58. (*Appellant's Specification*, Figures 2 and 3, p.6, ll. 8-9). Claim 6 further adds that the ribbed filter support 58 includes a concavity 60 for receiving said filter element 34. (*Appellant's Specification*, Figures 2 and 3, p.6, ll. 9-10). Claim 7 adds to claim 6 the requirement that the concavity 60 is open towards said inlet opening 54 in said base 46. (*Appellant's Specification*, Figure 2, p.6, ll. 16-18). Claim 8 adds to claim 7 the requirement that the filter element 34 is concave to match said concavity 60 of said filter support 58. (*Appellant's Specification*, Figures 2 and 3, p.6, ll. 10-12). Claim 9 further requires that filter element 34 is formed from filter paper. (*Appellant's Specification*, p.6, ll. 12-13). Claim 10 adds to claim 9 the requirement that filter element 34 has a surface area  $A_1$  greater than a surface area  $A_2$  of said inlet opening and greater than a surface area  $A_3$  of said open end of said dirt cup.

Claim 11 adds to claim 3 the requirement that a filter screen is held by said base across said inlet opening. Claim 12 adds to claim 1 the requirement that the dirt collection chamber is substantially cylindrical in shape. Claim 13 adds to claim 12 the requirement that the inlet is tangentially directed with respect to a sidewall of said dirt collection chamber. Claim 14 adds to claim 13 the requirement that the filter element is frustoconical in shape. Claim 15 further adds that the housing includes a nozzle section including said nozzle inlet and a canister section. Claim 16 adds to claim 15 the requirement that the nozzle section and canister section are pivotally connected together.

## **VI. Grounds of Rejection to be Reviewed on Appeal**

The Board must determine whether: (1) claims 1-4 and 11-13 are obvious in view of Sealfani in combination with Best or Boles; and (2) claims 5-10 and 14-16 are obvious in view of *Eskimo Pie v. Levous*, 3 USPQ 23, 35 F.2d 120 (3<sup>rd</sup> Cir. 1929).

## VII. Argument

### A. CLAIMS 1-4 AND 11-13 ARE NOT RENDERED OBVIOUS IN VIEW OF SCALFANI IN COMBINATION WITH BEST OR BOLES

#### TEACHINGS OF SCALFANI

Scalfani discloses a vacuum cleaner 10 having a nozzle 12 and an upper handle 14. (Col. 2, ll.50-52, Fig. 1). A dirt cup assembly 30 is releasably mounted on the upper handle 14. (Col. 3, ll.14-16). The dirt cup assembly 30 includes a dirt cup 50 and a cyclonic filter assembly 52. (Col. 3, ll. 16-17, Fig. 2). This filter assembly 52 includes an inverted truncated cone 100 pivotally connected to a member 102 that includes a filter bag 104 extending upwardly from the member 102. (Col. 3, ll. 55-60). The dirt cup 50 is formed with an open top 90 which receives the filter assembly 52. (Col. 3, ll. 50-54, Figs. 2-4). The dirt cup 50 also includes an inlet opening 80 for introducing air into the dirt cup 50. (Col. 3, ll. 37-40, Fig. 7). Nowhere does Scalfani teach or suggest a *filter housing and filter chamber* that mate with the open end of the dirt cup. *The Examiner explicitly agrees with this assessment of the teachings of Scalfani. See Office Action of June 1, 2007, p.2* (“Claims 1-4 and 11-13 differ from the disclosure of Scalfani et al. in that the filter housing and filter chamber mating with the open end of the dirt cup [are not taught].” Since Scalfani fails to teach or suggest the limitations of the Appellant’s claims, the Examiner cites Best or Boles as allegedly providing the teachings necessary to support her rejections.

#### TEACHINGS OF BEST

Best discloses a vacuum cleaner with a “detachable cyclonic vacuum module 16.” (Col. 3, ll. 22-25, Fig. 2). The detachable cyclonic vacuum module 16 includes a cyclonic separator 48 and a removable dirt cup 50. (Col. 4, ll. 9-13, Fig. 4). The cyclonic separator 48 includes a cylindrical sidewall 74, a circular upper wall 76 and a cyclone air inlet aperture 78. (Col. 4, ll. 56-65). The circular upper wall 76 includes an exhaust outlet 80 comprising a centrally located aperture therethrough. (Col. 4, ll. 59). A separator plate 84 in the form of a solid disk having

an upstanding annular collar is located in spaced relation below an upper wall 76 of the cyclonic separator 48. (Col. 4, ll. 61-64). A cylindrical screen 88 is retained at the ends thereof by each of the collars 80, 82. (Col. 4, l. 66-Col. 5, l. 7). In this manner, the separator plate is suspended from the upper wall 76, thereby forming a "toroidal chamber" between the cylindrical screen 88 and the side wall 74, and between the upper wall 76 and the separator plate 84. (Col. 5, ll. 1-7).

Discussing the function of the cyclonic separator 48 and a removable dirt cup 50, air passes through the inlet air aperture 78, into the toroidal chamber 90, and travels around the cylindrical screen 88. (Col. 5, ll. 8-12). As the air travels about the toroidal chamber 90, heavier dirt particles are forced toward the sidewall 74. (Col. 5, ll. 11-13). These particles fall under the force of gravity through a gap 92 defined between an edge of the separator plate 84 and the sidewall 74. (Col. 5, ll. 13-15). Dirt particles falling through the gap 92 are collected in the dirt cup 50. (Col. 5, ll. 15-17). The upper end of the dirt cup 50 is received in a nesting relationship to the side wall 74 to seal the dirt cup 50 with the cyclone separator 48. (Col. 5, ll. 17-20). As the inlet air traverses the toroidal chamber 90 and casts dirt particles toward the sidewall 74, the inlet air is drawn through the cylindrical screen 88, through the exhaust outlet 80, and into an outlet air conduit 60. (Col. 5, ll. 20-30).

#### **TEACHINGS OF BOLES**

Boles discloses a vacuum cleaner having a dirt collecting system 130 with a dirt cup 131. (Col. 3, ll. 37-42, Fig. 2). The dirt cup 131 includes a bottom wall 134, a generally flat rear wall 137, a pair of curved side walls 138, 139, and a handle 134. (Col. 4, ll. 49-52, Fig. 4). A main chamber of the dirt cup is divided into two separate chambers—a coarse particle separation chamber 132 and a fine particle separation chamber 133 (when a pre-filter frame 150 and pre-filter 152 are inserted therein). (Col. 4, ll. 50-56, Figs. 5 and 6). A fine particle filter 160 is held in place adjacent to an aperture 150 on the pre-filter frame 150. (Col. 4, ll. 28-39). Accordingly, the pre-filter frame 150 with the pre-filter 152 and fine particle filter 160 are positioned within

the walls of the dirt cup 131. (Col. 5, ll. 4-10). A lid 140 is provided for sealing the dirt cup 131. (Col. 4, ll. 64-66).

**NO COMBINATION OF SCALFANI WITH BEST OR BOLES TEACHES OR  
SUGGESTS APPELLANT'S CLAIMS**

In order to establish a *prima facie* case of obviousness, all of the claim limitations must be taught or suggested by the prior art. *KSR Intl. Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). However, no combination of Scalfani with Best or Boles teach or suggest all of Appellant's claims. As described above, nowhere does Scalfani disclose "a filter assembly including a filter housing defining a filter chamber, said filter housing and filter chamber mating with said open end of said dirt cup; and a filter element held in said filter chamber in said filter housing," as required in Appellant's claim 1. The Examiner expressly acknowledges that Scalfani fails to teach the filter housing and filter chamber mating with the open end of the dirt cup. *Office Action, June 1, 2007, page 2.*

To compensate for these missing teachings, the Examiner cites Best or Boles. Neither of these references, however, provide the necessary teaching or suggestion. Specifically, as described above, Best teaches a cyclonic separator 48, but fails to provide any structure that *defines a filter chamber*, as required by claim 1. Best teaches a toroidal chamber 90 that is *formed from the cylindrical screen 88 and the separator plate 84*. In other words, the filter identified by the Examiner (cylindrical screen 88) and an auxiliary structure (separator plate 84) define a chamber, *but there is absolutely no structure that defines a filter chamber*. Even if one were to assume that Best taught the filter assembly of claim 1, as discussed in sections identified below, the combination of Best and Scalfani would change the operation of Scalfani, along with requiring a complete redesign.

The other secondary reference to Boles also fails to provide any structure that defines a filter chamber. Boles discloses a vacuum cleaner having a dirt collecting system 130 with a

dirt cup 131. A main chamber of the dirt cup is divided into two separate chambers—a coarse particle separation chamber 132 and a fine particle separation chamber 133 (when a pre-filter frame 150 and pre-filter 152 are inserted therein). Accordingly, the pre-filter frame 150 becomes inserted in the dirt cup. There is no structure in Boles that is a filter housing defining a filter chamber that mates with an open end of the dirt cup. The only structure that mates with the open end of the dirt cup in Boles is the lid 140 and it fails to include any sort of chamber or other structure that receives a filter element. Furthermore, even if one were to assume that Boles taught the filter assembly of claim 1, as discussed in sections identified below, the combination of Boles and Scalfani would change the operation of Scalfani and require a complete redesign of the same.

For the reasons outlined above, Best and Boles fail to teach the filter housing of claim 1. Appellant's claim 2 further requires that the "filter housing includes a base, a sidewall and a top." Never does the Examiner point to any structure in either of these references that serve as a base, a sidewall, and a top. This is likely because these structures are not taught by the references. Since the U.S. Supreme Court requires that all claim limitations must be taught or suggested to support a *prima facie* case of obviousness, and the Examiner does not even make an attempt at arguing that the limitations of claim 2 are taught or suggested, claim 2 must be allowed.

Appellant's claim 3 adds the limitation to claim 2 that the "base includes an inlet opening in fluid communication with said open end of the dirt cup." Again, the Examiner fails to provide any argument supporting that the limitations of claim 3 are taught or suggested by the prior art or any source. She never addresses this claim other than to group it with other claims. There is absolutely no structure in Best or Boles that teaches a filter housing with a base including an inlet opening in fluid communication with the open end of the dirt cup. Since the Examiner fails to establish a *prima facie* case of obviousness, claim 3 must be allowed.



Claim 4 further requires that "at least one exhaust vent opening is provided in one of said sidewall and said top of said filter housing." Since the Examiner has failed to point to any structure in the prior art that teaches a filter housing with a sidewall and top, it follows that it would be logically impossible to point to an exhaust vent opening in one of the sidewall and top. As these limitations are clearly not identified in either of Best and Bolcs, claim 4 must be allowed.

Turning to claim 11, this claim adds to claim 3 the requirement of "a filter screen held by said base across said inlet opening." Once again, there has been no identification of a filter screen by the Examiner or the suggestion of one. Instead, claim 11 is part of the wholesale rejection made by the Examiner. Since there is absolutely no teaching or suggestion for the limitations of this claim, it must be allowed.

By their dependence (either directly or indirectly) on claim 1 and the fact that no *prima facie* case of obviousness has been established, claims 12 and 13 must also be allowed.

**THE EXAMINER'S PROPOSED MODIFICATION WOULD CHANGE THE PRINCIPLE OF OPERATION OF THE INVENTION IN SCALFANI**

As discussed above, Scalfani discloses a dirt cup assembly 30 that includes a dirt cup 50 and a cyclonic filter assembly 52. This filter assembly 52 includes an inverted truncated cone 100 pivotally connected to a member 102 that includes a filter bag 104 extending upwardly from the member 102. The dirt cup 50 is formed with an open top 90 which receives the filter assembly 52. The dirt cup 50 also includes an inlet opening 80 for introducing air into the dirt cup 50. If one were to replace the filter assembly 52 of Scalfani with the toroidal chamber 90 and cylindrical screen 88 of Best, as proposed by the Examiner, Scalfani would no longer work as desired. Specifically, Scalfani includes an inlet opening 80 for introducing air into the dirt cup 50. This air collides with the inverted truncated cone 100 to create the desired cyclonic flow.

Best requires an opening 78 near the cylindrical screen 88 and in the region above the separator plate 84. If one were to place this configuration of Best on the dirt cup 50 of Scalfani, the dirt cup assembly would include two openings. Moreover, there would not be the desired structure (such as the inverted truncated cone 100) in the dirt cup 50 of Scalfani for creating the cyclonic flow. This would clearly change the principle of operation of the vacuum cleaner of Scalfani. Accordingly, a case of *prima facie* obviousness is lacking.

Similarly, substituting the filter assembly 52 of Scalfani with the filter arrangement with Boles clearly changes the principle of operation of the vacuum cleaner of Scalfani. As previously discussed, Boles describes a filter arrangement that resides *inside the dirt cup*. Moreover, Boles discloses that the filter arrangement divides the dirt cup into two separate chambers. To insert this arrangement into the dirt cup of Scalfani would result in the top portion of Scalfani being open (since the filter assembly 52 would be removed and replaced with the filter arrangement taught by Boles). This would result in dirt not being captured in the dirt cup, as air would not be forced through the filter assembly of the dirt cup (again because the top would be open without the filter assembly 52). Also, the structure for creating the cyclonic flow would not be positioned in the dirt cup 50 of Scalfani. Rather, the dividing filter assembly of Boles would be present, which would not create the desired air flow. Since replacing the filter arrangement of Scalfani with that of Boles would clearly change the principle of operation of the vacuum cleaner of Scalfani, no *prima facie* case of obviousness exists.

**THE EXAMINER'S PROPOSED MODIFICATION WOULD REQUIRE A  
COMPLETE REDESIGN OF THE INVENTION IN SCALFANI**

Clearly, to incorporate either the structure of Best or Boles with Scalfani would require a complete redesign to the vacuum cleaner of Scalfani. With regard to using structure from Best, the toroidal chamber 90 and cylindrical screen 88 are positioned in and attached to the cyclonic separator 48 that sits atop the dirt cup 50. As discussed in Best, the upper end

of the dirt cup 50 is received in a nesting relationship to the side wall 74 to seal the dirt cup 50 with the cyclone separator 48. To provide the toroidal chamber 90 and cylindrical screen 88 of Best on the dirt cup 50 of Scalfani (as proposed by the Examiner) would require a complete redesign of the dirt cup 50 to accept and retain the cyclonic separator 48, since the toroidal chamber 90 and cylindrical screen 88 are affixed to the cyclonic separator 48. Also, the body of the vacuum cleaner above the dirt cup 50 of Scalfani would have to be redesigned to allow for the insertion of the additional cyclonic separator 48 structure of the Best configuration. The body of Scalfani would also have to be adapted to allow for a user to insert and remove the dirt cup from the vacuum cleaner without interference. Moreover, since Best requires an air inlet above the separator plate 84, the air inlet 80 of Scalfani would have to be closed or otherwise modified, so that there were not two air inlets in the dirt cup. Clearly, the need for this complete redesign further supports that there is no *prima facie* case of obviousness.

Similarly, the Scalfani vacuum cleaner would have to be completely redesigned to work with the filter arrangement of Boles. For instance, a new lid configuration would be required to allow for the desired airflow out of the top of the dirt cup in Scalfani. Since the filter assembly 52 would no longer be present, something would have to be designed to cover the dirt cup, while still allowing for desired airflow. Also, the shape and interior of the dirt cup in Scalfani would have to be redesigned to receive the interior filter arrangement of Boles. For example, some structure would have to be added to the interior to hold the filter arrangement of Boles in place. Since dirt cups are often made of a polymer material, this additional structure to the interior of the dirt cup would likely require remolding the dirt cup. The significant amount of redesign that would be required to Scalfani further supports that a *prima facie* case of obviousness is lacking.

**B. CLAIMS 5-10 AND 14-16 ARE NOT RENDERED OBVIOUS BY *ESKIMO PIE CORP. v. LEVOUS***

On page 3 of the Office Action mailed June 1, 2007, the Examiner states, “Claims 5-10 call for the filter support having a concavity. It is well settled that mere change of shape without affecting the function of the part would have been an obvious design modification.” To support her position the Examiner cites the case of *Eskimo Pie Corp. v. Levous*, 3 USPQ 23, 35 F.3d 120 (3<sup>rd</sup> Cir. 1929). This is all that is provided by the Examiner in support of the rejection to claims 5-10. There is absolutely no mention of any prior art teaching of the elements of claims 5-10.

The non-binding, non-precedential case of *Eskimo Pie* dealt with two identical inventions that only differed by shape. Specifically, a “block or brick” of ice cream versus a “round ball” of ice cream. From this very specific holding, the Examiner contends that claims 5-10 are obvious.

Unfortunately, the Examiner has completely misconstrued claims 5-10, as well as disregarded the elements of these claims. Claim 5 requires that the filter assembly of claim 4 further include a “ribbed filter support.” This is clearly structure that is not taught or suggested by any of the prior art references and certainly not *Eskimo Pie*, the only support the Examiner provides for her rejection. Given the clear impropriety of the rejection to claim 5 and the lack of support whatsoever, this claim must be allowed.

Next, claim 6 adds that the ribbed filter support of claim 5 includes a concavity for receiving the filter element. Since the Examiner has not provided evidence for a ribbed filter support, a concavity in a ribbed filter support clearly is missing. Again, the Examiner fails to provide even a scintilla of prior art evidence in support of the rejection to claim 6 and only cites a non-applicable case from the Third Circuit Court of Appeals.

Claim 7 further defines the concavity of claim 6. Since the Examiner has failed to provide any evidence showing this structure as being obvious, this claim must be allowed.

Claim 8 further requires that the filter element is concave to match the concavity of the filter support. Again, there is no evidence showing this in the prior art or suggesting that such a configuration is obvious.

Claim 9 requires that the filter element is formed from filter paper. The Examiner points to no evidence as teaching or suggesting this filter element. Instead, a case relating to the shape of ice cream is the only support the Examiner provides. Claim 10 must also be allowed, as it requires that the filter element having a surface area that is not taught or suggested by any prior art.

With regard to claims 14-16, the Examiner also fails to point to where these elements are taught or suggested by any prior art reference. The Examiner again only cites *Eskimo Pie* to support her rejections.

Besides failing to teach or suggest the limitations of Appellant's claims, the Examiner's reliance on *Eskimo Pie* is also inappropriate, as it was decided before the seminal decision in the U.S. Supreme Court in *Graham v. John Deere Co. Of Kansas City*, 383 U.S. 1 (1966), the viability of which was recently affirmed in *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). According to the Manual of Patent Examining Procedure, at Section 2141, "Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 U.S.C. 103." Therefore, the Examiner's reliance on *Eskimo Pie* alone is wholly improper.

In the event that the Examiner intended to cite any combination of Scalfani, Best, and/or Boles, for the reasons outlined above with regard to claims 1-4 and 11-13, claims 5-10 and 14-16 should also be allowed.

### **C. Conclusion**

The Appellant submits that: (1) all claims are in a condition for allowance; (2) claims 1-4 and 11-13 are not obvious in view of Scalfani in combination with Best or Boles, and the

combination of these references is improper; and (3) claims 5-10 and 14-16 are not obvious in view of *Eskimo Pie v. Levous*, 3 USPQ 23, 35 F.2d 120 (3<sup>rd</sup> Cir. 1929), and reliance on this dated, non-precedential case is inappropriate. Accordingly, it is respectfully requested that the rejections of the pending claims be reversed and the application be remanded to the Examiner for allowance.

To the extent any necessary fees are due, the undersigned authorizes their deduction from Deposit Account No. 11-0978.

Respectfully submitted,

**KING & SCHICKLI, PLLC**

A handwritten signature in black ink, appearing to read "Brett G. Corbly", written in a cursive style.

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### **VIII. CLAIMS APPENDIX**

The claims on Appeal include 1-16.

#### **The Listing of claims:**

1. (Original) A vacuum cleaner, comprising:
  - a housing;
  - a nozzle inlet;
  - a suction generator carried on said housing;
  - a dirt cup carried on said housing, said dirt cup a dirt collection chamber, an inlet and an open end;
  - a filter assembly including a filter housing defining a filter chamber, said filter housing and filter chamber mating with said open end of said dirt cup; and
  - a filter element held in said filter chamber in said filter housing.
2. (Original) The vacuum cleaner of claim 1 wherein said filter housing includes a base, a sidewall and a top.
3. (Original) The vacuum cleaner of claim 2 wherein said base includes an inlet opening in fluid communication with said open end of said dirt cup.
4. (Original) The vacuum cleaner of claim 3, wherein at least one exhaust vent opening is provided in one of said sidewall and said top of said filter housing.

5. (Original) The vacuum cleaner of claim 4, wherein said filter assembly further includes a ribbed filter support.
6. (Original) The vacuum cleaner of claim 5, wherein said ribbed filter support includes a concavity for receiving said filter element.
7. (Original) The vacuum cleaner of claim 6, wherein said concavity is open towards said inlet opening in said base.
8. (Previously Presented) The vacuum cleaner of claim 7, wherein said filter element is concave to match said concavity of said filter support.
9. (Original) The vacuum cleaner of claim 8, wherein said filter element is formed from filter paper.
10. (Original) The vacuum cleaner of claim 9, wherein said filter element has a surface area  $A_1$  greater than a surface area  $A_2$  of said inlet opening and greater than a surface area  $A_3$  of said open end of said dirt cup.
11. (Original) The vacuum cleaner of claim 3, further including a filter screen held by said base across said inlet opening.
12. (Original) The vacuum cleaner of claim 1, wherein said dirt collection chamber is substantially cylindrical in shape.
13. (Original) The vacuum cleaner of claim 12, wherein said inlet is tangentially directed with respect to a sidewall of said dirt collection chamber.



14. (Original) The vacuum cleaner of claim 13, wherein said filter element is frustoconical in shape.

15. (Original) The vacuum cleaner of claim 14, wherein said housing includes a nozzle section including said nozzle inlet and a canister section.

16. (Original) The vacuum cleaner of claim 15, wherein said nozzle section and canister section are pivotally connected together.

**IX. EVIDENCE APPENDIX**

None

**X. RELATED PROCEEDINGS APPENDIX**

None